EOG Review: Expressions and Equations Unpacked Questions Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ROUND ONE**

 Simplify.

1. (12 - 8 **** 3) + 23

2. Write z • z • z using an exponent.

 3. What is the value of $\left(\frac{3}{4}\right) x ( \frac{2}{3})$ 3?

 4. Simplify 6  5 + 

5. Simplify 5 • 8 – (3 + 27 ÷ 3²) + 5

6. What is the area of a square with a side length of 5x?

 7. Solve for x in this equation: 4x = 256

 8. Write an expression that represents each phrase:

* 1. 9 times any number, *n* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. 9 less than 6 times a number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. 5 times the difference of a number and 12 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. 10 less than the sum of 2 and a number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	5. Triple the difference between a number and 8 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	6. The quotient of the sum of *y* plus 4 and 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Use this expression to name each part: y2 + 8*z* + 15*x* + 27

* 1. Term: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Constant: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. Exponent: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	5. Coefficient: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	6. Expression: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Which inequality describes the following words?

 (greater than, greater than or equal to, less than, less than or equal to)

* 1. At most\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Does not exceed\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Mimimum\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. At least \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ROUND TWO**

9. Evaluate the expression 4*x* + 10*y* when *x* is equal to 8 and *y* is equal to 3.6

10. Evaluate 4*(n* + 2) – 7*n*, when *n* = $\frac{3}{7}$

11. Evaluate 6*xy* when *x* = 4.5 and *y* = 8

12. Evaluate the following expression when *x* = 6 and *y* = 4

x2 + y3

 4

13. It costs $150 to rent the skating rink plus $6 per person. Write an expression to find the cost for any number (*n*) of people. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_What is the cost for 22 people?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. The expression *c* + 0.08*c* can be used to find the total cost of an item with 8% sales tax, where *c* is the pre-tax cost of the item. Use the expression to find the total cost of an item that cost $43.

15. Max is planting a flower bed. The width is 4.5 units and the length can be represented by x + 3. Write 2 equivalent expressions that could represent the area of the flower bed.

 a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ROUND THREE**

16. The expression 18y + 36 can represent the area of the figure below. Express the area using the distributive property. (Use GCF)

18y

36

17. Write an expression to represent this picture of each rectangle equals *z* and each square equals 2.

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*18. z* + *z* + *z* = \_\_\_\_\_\_\_

19. 12*m + 18m = \_\_\_\_\_\_\_*

20. 5g2 – 2g = \_\_\_\_\_\_\_

21. Write an equivalent expression for 4(*x* + 6) + 7(*x* + 8) (Hint: Simplify and combine like terms)

22. Are the expressions equivalent? \_\_\_\_\_\_ (Can only receive first try credit)

6m + 18 6(m+3) 5m + 18 + m 10 + 2m + m + 7 + 3m

23.Joan had 42 papers in his desk. His teacher gave him some more and now she has 120. How many papers did his teacher give her? Write and solve an equation\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Find the solution\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. The equation 0.35 *s* = 11 where *s* represents the number of stamps in a booklet. The booklet of stamps costs 12 dollars and each stamp costs 35 cents. How many stamps are in the booklet? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

25. Write an inequality to represent “thirteen is less than 2 times another number.” What numbers could possibly make this a true statement? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Graph your solution on a number line. (Draw a number line then graph)

26. Write an expression to represent Monica’s age in five years, when *a* represents her present age.

 **ROUND FOUR**

27. Graph the inequalities

|  |
| --- |
|  x ≥ -4number-line.png |
|  2 < xnumber-line.png |

28. Solve

|  |  |
| --- | --- |
| a + 10 < 14  |  Solution (needs to be written like an inequality) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Graph the solutionhttp://img.sparknotes.com/figures/5/50ca5e784bb7e4242910d5b8a571d103/number_line.gif |

 29. Jonah’s mom said he could have a pizza party. He can spend no more than $75. Write an inequality to represent the amount of money Jonah can spend on pizza.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

30. There will be at least 40 questions on the test. Write an inequality \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

31. The skating rink charges $110 to reserve the place and then $7 per person. Define a variable and write an expression to represent the cost for any number of people.

32. Maria has four more than triple as many crayons as Elizabeth. Write an algebraic expression to represent the number of crayons that Maria has.

33. An amusement park charges $25 to enter and $0.50 per ticket. Write an algebraic expression to represent the total amount spent.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**ROUND FIVE**

34. Andrew has a summer job doing yard work. He is paid $12 per hour and a $18 bonus when he completes the yard. He was paid $88 for completing one yard. Write an equation to represent the amount of money he earned.

35. Bill earned $15.00 mowing the lawn on Saturday. He earned more money on Sunday. Write an expression that shows the amount of money Bill has earned.

36. Solve both equations to prove they have the same solution. $\frac{1}{6}x$ = 24 and $\frac{x}{6}$ *=* 24

37. Meagan spent $56.58 on three pairs of jeans. If each pair of jeans costs the same amount, write an algebraic equation that represents this situation and solve to determine how much one pair of jeans cost.

38. Julie gets paid $20 for babysitting. He spends $1.99 on a package of trading cards and $6.50 on lunch. Write and solve an equation to show how much money Julie has left.

39. The class must raise at least $220 to go on the field trip. They have collected $60. Write an inequality to represent the amount of money, *m*, the class still needs to raise. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Represent this inequality on a number line. (make your own number line)

40. The Flores family spent less than $200.00 last month on groceries. Write an inequality to represent this amount and graph this inequality on a number line. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. Make a number line

 41. What is the relationship between the two variables in the table below?

* 1. Write an equation that illustrates the relationship. \_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Complete the table using the equation.
	3. Graph the relationship on a coordinate grid. Label all parts of the graph.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | 1 | 2 | 3 | 4 | 5 |
| Y | 2.5 | 5 | 7.5 | 10 |  |